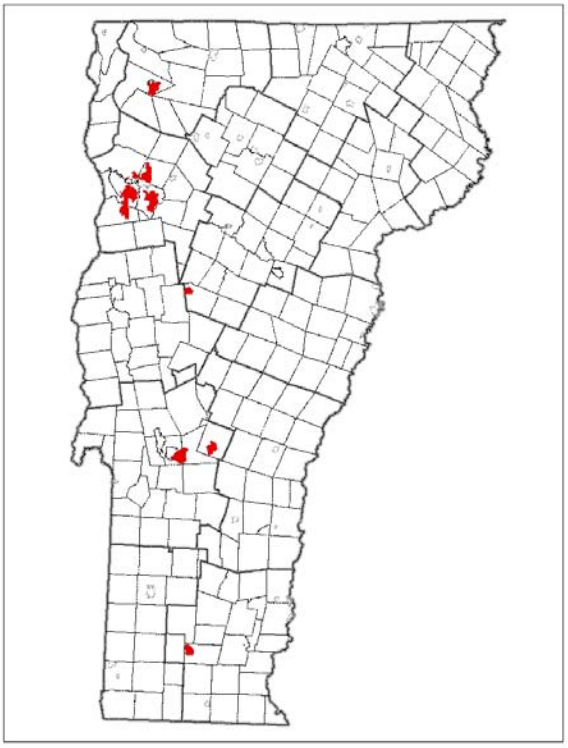
Stormwater Management

The Clean and Clear Action Plan recognizes the importance of managing both the quantity and quality of stormwater runoff. The Plan also recognizes the importance of effectively managing stormwater – both within stormwater-impaired watersheds and in the un-impaired waters throughout the basin. These management strategies will yield benefits both to the immediate receiving waters, and finally to Lake Champlain.

The management of stormwater runoff is at once a simple concept and a complex problem. Water runs off from impervious surfaces rather than infiltrating naturally into the soil. The cumulative effect of the increased frequency, volume, and rate of stormwater runoff results in increases in wash-off pollutant loading to streams, and destabilization of the stream channels. More information on Vermont's management of stormwater runoff is available at www.vtwaterquality.org/stormwater.htm

Waters Impaired by Stormwater Runoff



There are waters lying within 14 sub-watersheds in the Vermont portion of the Lake Champlain Basin that are listed as "impaired" primarily due to urban stormwater runoff. While these areas are not the only areas in the basin where better stormwater treatment is needed to reduce phosphorus loads to Lake Champlain, the Agency focused initially on these impaired waters, believing that the priority sites to reduce phosphorus loads to Lake Champlain would be addressed. The Agency included a strategy for cleaning up these waters in its Lake Champlain Phosphorus TMDL in 2002, but the Vermont Water Resources Board subsequently overruled this strategy. The Vermont General Assembly then passed legislation aimed at cleaning up these impaired waters; but a recent ruling by the Vermont Water Resources Board held that additional federal requirements must be applied. In spite of the legal complications associated with implementation of cleanup plans for these waters, the Agency is proceeding with the development of TMDLs and water quality remediation plans for these waters. The Agency believes that these plans will be valuable and necessary tools in the cleanup of these impaired waters, regardless of the outcome of the legal proceedings presently underway.

Stormwater Permitting in Un-Impaired Watersheds

In order to maximize effectiveness in managing stormwater while the impaired waters issues are pending resolution, the Agency has directed its resources to the implementation of a general permit program and an aggressive program to bring 1441 expired stormwater permits spanning approximately 25 years up-to-date. The Agency has issued general permits, with certifications of compliance from stormwater consultants, to categories of projects rather than on an individual project basis in order to reduce project review time, and, therefore, allow more time for permit

compliance monitoring. General permits are now issued for both new development and redevelopment (General Permit 3-9015) and previously permitted development (General Permit 3-9010). An aggressive program aimed at identification, notification and technical assistance to existing owners of projects with expired stormwater permits has paid great dividends. Of the original 1441 expired projects, over 1100 have been successfully processed, either re-issued or terminated for various reasons. Thus far, only 23 permits have required initiation of formal enforcement actions.

Failed stormwater outfall on Bartlett Brook

Stormwater Management Program Staffing

FY-2005 funds were made available to the DEC Stormwater Management Section to add the necessary staff to carry out the Clean and Clear Action Plan. These three positions are all located in the Waterbury office. The following table lists the position titles, principle Clean and Clear responsibilities, and the status of hiring:

Position Title	Duties	Status
Environmental Technician II	Provide technical and administrative assistance to applicants, permittees, and consultants.	Hired July, 2004
Environmental Analyst III	Technical development of watershed-wide TMDLs and development and implementation of watershed general permits for the 17 stormwater impaired watersheds.	Hired August, 2004
Environmental Analyst II	Technical review of STP design, retrofit designs, and stormwater permitting in impaired watersheds.	To be hired January, 2005

Capital Budget Programs

Two separate programs were created and funded to enable progress within the stormwater-impaired watersheds. These programs were designed to 'jump-start' stormwater offset projects within impaired watersheds and to provide financial assistance to municipalities wherein these impaired waters flow, for the purposes of assisting and administrating impaired water remediation.

A total of $1.2 million in FY-2005 funds were made available to the DEC Stormwater Management Program for use in 'jump-starting' offset project design and construction within the stormwater-impaired watersheds. The concept of offset credits is an integral part of the interim permitting process that was developed in Act 140 of the 2004 Legislative session. The stormwater management program has worked diligently with municipalities to identify potential offset projects within these communities, and has proposed offset project funding scenarios combining available Federal State - Tribal Assistance Grants (STAG) and the State dollars in an attempt to leverage maximum benefit from both of these funding sources. The following table shows the currently proposed funding allocations:

TOWN/ WATERSHED	PROJECT	ESTIMATED PROJECT COST*	STAG03 Total grant/ Offset project grant	STAGO3 MATCH Offset project	STAG04	STATE FUNDS
BURLINGTON/ ENGLESBY	ENGLESBY WATERSHED 08/SM6	$895,000	$74,500/ $74,500	$60,955	$400,000	$50,000
COLCHESTER/SUNDERLND	FORT ETHAN ALLEN OUTFALL (#5&#6)	$678,600	$500,000/ $373,200	$305,400	$75,000	$130,000
ESSEX/ INDIAN	COLBERT ST	$156,000	$100,000/ $64,000	$28,800	$75,000	$100,000
ESSEX JCT/ INDIAN	5 CORNERS NORTH	$175,000	$100,000/ $96,250	$78,750	$150,000	$100,000
MILTON	TANDEM VACUUM VACTOR				$100,000	----------
RUTLAND/ MOON	MAIN ST – INFIL.GAL/ KILLINGTON AVE-PIEDMONT POND					$200,000
ST ALBANS/ STEVENS	SR-DIVERSION POND					$100,000
ST ALBANS/ RUGG						$100,000
SHELBURNE/ MUNROE	HULLCREST-MARTIN DALE	$380,000	$100,000		$200,000	$150,000
SO.BURLING./ POTASH	KIDSTOWN-C5-JAILHOUSE	$320,000?	$500,000/ $302,550	$197,450		$135,000
WILLISTON/ ALLEN	SIPLE FARM SRP/ WILLISTON VILLAGE SRP				$150,000	$100,000
WINOOSKI/ MOREHOUSE	MALLETTS BAY AVE	$212,000	$100,000/$0	$81,818	$200,000	$35,000
WARREN						$33,333
DOVER						$33,333
KILLINGTON						$33,333
TOTALS			**$1,474,000**		**$1,450,000**	**$1,200,000**

The Municipal Assistance Fund was created to provide for any necessary cover equipment and office set-up expenses and to create pass-through grants and contracts for parcel mapping programs, data management system development, stormwater utility development and other mutually beneficial programs. The initial funding was $120,000 with an expectation of similar funding in fiscal years 2006 and 2007. The funds have been proposed for equal distribution among the 22 municipalities that encompass sections of watersheds draining to stormwater-impaired streams. These municipalities are: Burlington, Colchester, Dover, Essex, Essex Junction, Fairfield, Fayston, Georgia, Killington, Mendon, Richmond, Rutland, Rutland Town, Shelburne, Somerset, South Burlington, St. Albans City, St. Albans Town, Waitsfield, Warren, Williston, and Winooski.

Operating Budget Programs

A total of $450,000 in FY05 operating funds were made available to the DEC Stormwater Management Program to create pass-through grants and contracts for data acquisition necessary for the TMDL/Water Quality Remediation Plan development within the 17 stormwater impaired watersheds. An additional $100,000 of Federal FY04 'One-time' money was committed to the project. A request for an additional $450,000 of State money is pending for FY06. As of this date in the reporting period, these pass-through monies have been committed in the following areas:

- ANR has contracted with UVM to develop a consistent baseline of stream geomorphic assessment (SGA) assessments for storm water impacted streams in Chittenden County that can be used as a point of comparison for future assessments to document future improvements or degradation of these stream resources on a set of reaches from storm water impacted (and perhaps selected attainment) streams in Chittenden County to include:

Allen Brook	Englesby Brook	Munroe Brook
Bartlett Brook	Indian Brook	Potash brook
Centennial Brook	Morehouse Brook	Sunderland Brook

  The ANR also has a C&C supported component in our grants with the Friends of the Mad River to assess Rice and Clay brooks to the Phase II assessment level, and a component of the grant with the Lake Champlain Committee to assess Stevens and Rugg brooks to the Phase II assessment level. $93,000; $6,800; $14,000

- The ANR recently released an RFP for a major component of the VT Stormwater project; sub-watershed field delineations and stormwater discharge location mapping. This information will be used in the development of the remediation plans. Initial interest in the RFP is good with over 40 requests for the bid package to date. It is expected that the mapping effort will take most of the 2005 field season, with the work product completed by Fall 2005. $100,000

- Impervious Area Mapping- ANR is undertaking a pilot project to assess the use of remote sensing, using QuickBird satellite data, for impervious surface mapping. This project will be completed in conjunction with the School of Natural Resources at the University of Vermont. The QuickBird satellite acquires high-quality satellite imagery for map creation, change detection, and image analysis. The proposed project will include an accuracy assessment of previously processed QuickBird data for the South Burlington area.

Additionally, this winter, DEC will perform digital analysis of impervious surfaces in St. Albans' impaired watersheds. $37,000

- Pending a favorable outcome of the previously mentioned tasks, the ANR will proceed with ordering QuickBird Data for the remaining impaired watersheds and the subsequent digital analysis of the data for these watersheds. Additionally, systematic classification errors determined during the accuracy assessment will be addressed in recognition of the section's needs. To this extent UVM will apply advanced object oriented eCognition classification techniques to potentially improve the mapping accuracy for the previously analyzed data using the QuickBird satellite data. $100,000

- Hydrologic Guaging - The ANR will release an RFP in January of 2005 for stream flow and precipitation recording in all stormwater-impaired waters. This hydrologic data is essential in producing models that can provide the assurance that the TMDLs and Remediation Plans will be successful in restoring the stormwater-impaired streams $150,000

- TMDL Development - The ANR is continuing to work with EPA and its principal contractor, TetraTech in the development of stormwater models for each of the stormwater-impaired watersheds within the Lake Champlain basin. Most recently, the Section has provided TetraTech data on land use, stream flow, and attainment streams. The attainment streams will serve as reference streams, the flows of which serve as the flow targets in the impaired streams. Developing flow targets is the most crucial step in the development of approvable TMDLs. More refined land use and hydrologic data will be collected and incorporated into the models over the next two years in order to implement the TMDLs by way of general permits. These permits will, on a watershed basis, establish the level of treatment and detention that is required of all dischargers in a given watershed. $45,000

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Stormwater Management Indicators

In order to track the progress of the Clean and Clear Action Plan with respect to progress in remediation of stormwater-impaired receiving streams and in protection of currently un-impaired receiving waters, the DEC Stormwater Management Section will monitor the following set of program indicators:

#	Indicator Description	Unit of Measure
EXPIRED STORMWATER PERMIT BACKLOG REDUCTION		
1	Number of remaining expired stormwater permits that have not been renewed.	Number of expired permits.
2	Number of expired stormwater permits that have been referred to ANR Enforcement Division.	Number of NOAVs issued, number of cases referred to Enforcement Division.
STORMWATER PERMITTING		
3	Ensure protection of receiving waters through effective management of stormwater runoff by specification of necessary treatment and control techniques at new construction and re-development projects.	Number of new Individual Permits or General Permit Authorizations Issued.
4	Efficient and timely review and processing of permit applications.	Number of 'PEP' permitting days.
5	Implementation status of watershed-wide general permit strategy for remediation of the stormwater impaired waters.	Number of watershed permits issued.
STORMWATER TMDL/WQRP DEVELOPMENT		
6	Development of attainment-watershed based hydrological targets for each of the stormwater impaired watersheds.	Number of TMDLs developed and adopted by USEPA.
7	Detailed mapping of impervious surfaces, sub-watershed delineations and sub-basin drainage network mapping.	Percentage of total area within the impaired watersheds for which this information has been developed.
8	Development of baseline/adaptive-management based monitoring program.	Percentage of streams monitored by installed gages, percentage of streams classified by geomorphic assessment protocols.
MULTI-SECTOR GENERAL PERMIT IMPLEMENTATION		
9	Create a public draft of the Multi-Sector General Permit, conduct public hearings, and adopt the final permit.	Number of public meetings and hearings conducted as part of permit adoption process.
10	Conduct Education and Outreach training sessions for affected industries and municipalities.	Number of towns and SIC code industries contacted and provided I&E regarding necessary permit conditions.
11	Develop and conduct a Statewide implementation plan for the MSGP.	Percentage of affected entities who receive coverage under the MSGP, or comply with appropriate means of permit exemption
EDUCATION & TRAINING		
12	General Public Outreach and Education.	Number of public presentations and meetings conducted by Stormwater Management .
13	Consultant trainings on the Vermont Stormwater Management Manual.	Number of training sessions conducted for partner consulting firms and organizations provided or sponsored by the Stormwater Management Program.
14	Staff trainings.	Number of training opportunities provided for SWMP staff training.